

In the claims:

2c 1. (Currently Amended) A method for conditioning a packaged powder, the method comprising:

providing a receptacle having an enclosed chamber containing an amount of a powder; ~~and~~

providing at least one pulse of energy to the receptacle to increase the efficiency at which the powder may be extracted from the chamber ~~when flowing a gas through the chamber; and~~

flowing a gas through the chamber to aerosolize the powder.

2. (Original) A method as in claim 1, further comprising providing the pulse of energy while the powder is sealed within the chamber.

3. (Original) A method as in claim 1, wherein the pulse providing step further comprises quickly striking the receptacle.

4. (Original) A method as in claim 3, further comprising striking the receptacle with an amount of energy of at least about 0.01 lbf-in.

5. (Original) A method as in claim 3, further comprising releasing a springloaded lever to quickly strike the receptacle.

6. (Original) A method as in claim 1, wherein the pulse providing step further comprises moving the receptacle past an arm that temporarily engages a portion of the receptacle.

7. (Original) A method as in claim 1, wherein the pulse providing step further comprises bending and quickly releasing receptacle to permit receptacle to strike a surface.

8. (Currently Amended) A method as in claim 1, wherein the pulse providing step further comprises ~~further comprises~~ providing a pulse of vibratory energy to the receptacle.

As
Cont'd

9. (Original) A method as in claim 8, further comprising contacting the receptacle with a vibrating piezoelectric transducer to provide the vibratory energy.

10. (Original) A method as in claim 9, further comprising vibrating the transducer at a frequency of at least about 10 kHz.

11. (Original) A method as in claim 1, wherein the powder is composed of fine particles having a mean size in the range from about 0.5 μm to about 5 μm .

12. (Original) A method as in claim 1, further comprising providing at least one pre-conditioning step prior to providing said at least one pulse of energy, wherein said pre-conditioning step comprises vibrating the receptacle for a predetermined period of time.

13. (Currently Amended) A method as in claim 1, wherein the receptacle is vibrated at a frequency within the range of about 0.01 Hz to about 500 Hz, ~~500 Hz~~.

14. (Original) A method as in claim 1, wherein the receptacle is vibrated for about 0.01 minute to about 10 minutes.

15. (Currently amended) A powder conditioning system comprising:
a receptacle having an enclosed chamber containing an amount of a powder; and
a mechanism to provide at least one pulse of energy to the receptacle to increase the efficiency at which the powder may be extracted from the chamber when flowing a gas through the chamber; and
an aerosolization mechanism to aerosolize the powder in the receptacle by flowing gas through the chamber.

16. (Currently Amended) A system as in claim 15, wherein the mechanism to provide at least one pulse of energy to the receptacle comprises a striking device to quickly strike the receptacle.

17. (Original) A system as in claim 16, wherein the striking device is configured to strike the receptacle with at least about 0.01 lbf-in in energy.

Al
and

18. (Original) A system as in claim 16, wherein the striking device comprises a spring-loaded lever arm, and a release apparatus to release the lever arm.

19. (Original) A system as in claim 18, further comprising a pivotal latch having a lock that pivots as the receptacle is moved against the latch, and a trigger having a ramp, wherein the lock of the latch is slidable upon the ramp when the latch pivots to cause the lever arm to pivot and compress a first spring and cause the lock to engage the trigger to lock the lever arm in an energy storage position.

20. (Original) A system as in claim 19, further comprising a second spring that is in contact with the trigger, wherein further movement of the receptacle causes the receptacle to engage and move the trigger away from the lock to release the lever arm which then strikes the receptacle.

21. (Currently Amended) A system as in claim 15, wherein the mechanism to provide at least one pulse of energy to the receptacle comprises a bending device that is configured to bend and then quickly release the receptacle to permit the receptacle to strike a surface.

22. (Currently Amended) A system as in claim 15, wherein the mechanism to provide at least one pulse of energy to the receptacle comprises an arm that is mounted to a frame, and a movable platform to move the receptacle past the arm while temporarily engaging the arm.

23. (Currently Amended) A system as in claim 15, wherein the mechanism to provide at least one pulse of energy to the receptacle comprises a vibratable element that is configured to at least temporarily contact the receptacle.

24. (Original) A system as in claim 23, wherein the vibratable element comprises a piezoelectric transducer.

25. (Original) A system as in claim 15, wherein the receptacle further comprises a metallic body having a tab extending from the chamber.

A¹
cat. id

26. (Original) A system as in claim 15, wherein the powder is composed of fine particles having a mean size in the range from about 0.5 μm to about 5 μm .

27. (Currently Amended) A system as in claim 15, further comprising a container having an enclosure, wherein the receptacle is held within the enclosure, and wherein the mechanism to provide at least one pulse of energy to the receptacle is coupled to the container.

28. (Original) A system as in claim 27, wherein the container comprises a base and a cover that is pivotally coupled to the base, wherein the base and the cover define the enclosure.

29. (Original) A system as in claim 28, further comprising a coupling arrangement that couples the receptacle to the base.

30. (Currently Amended) A system as in claim 28, wherein the mechanism to provide at least one pulse of energy to the receptacle comprises a hook coupled to the cover that engages and then releases the receptacle when the cover is pivoted to permit the receptacle to strike the base.

31. (Currently Amended) A system as in claim 29, wherein the coupling arrangement is pivotally coupled to the base, and wherein the mechanism to provide at least one pulse of energy to the receptacle comprises a latch that is operably coupled to the base, an arm that is coupled to the cover, and a cantilever beam that is attached to the coupling arrangement, wherein the arm is configured to engage and pivot the coupling arrangement as the cover is opened, and wherein the latch is configured to engage and then release the cantilever beam when the coupling arrangement is pivoted to permit the cantilever beam to strike the receptacle.

32. (Original) A system as in claim 31, wherein the latch is slidably coupled to the base such that the latch may be moved over the cantilever beam after the receptacle has been positioned within the enclosure.

33. (Currently Amended) A system as in claim 28, wherein the mechanism to provide at least one pulse of energy to the receptacle comprises a spring that is coupled to the

Al
cover and a latch that is operably coupled to the base, wherein the latch is operable to release the spring to permit the spring to strike the receptacle.

34. (Original) A system as in claim 33, wherein the latch is slidably coupled to the base such that the latch may be moved to release the spring after the cover has been closed.

35. (Currently Amended) A system as in claim 15, further comprising a housing and a plurality of receptacles that are stacked within the housing, and wherein the mechanism to provide at least one pulse of energy to the receptacle comprises a biased striking member and a trigger that is movable between a home position and a striking position, wherein movement of the trigger to the striking position releases the striking member to permit the striking member to strike one of the receptacles.

36. (Original) A system as in claim 35, further comprising an advancement apparatus that is configured to advance the receptacles toward the striking member upon movement of the trigger to the striking position, and further comprising a push plate coupled to the trigger such that movement of the trigger back to the home position pushes a treated receptacle from the housing.

37. (Currently Amended) A powder dispersion device, comprising:
a housing that is adapted to receive a receptacle having an enclosed chamber containing an amount of a powder;
an aerosolization system in the housing to extract the powder from the receptacle and to entrain the powder in a gas stream to form an aerosol by flowing gas through the chamber;
a mechanism to provide at least one pulse of energy to the receptacle prior to aerosolization to increase the efficiency at which the powder may be extracted from the chamber when flowing a gas through the chamber.

38. (Original) A device as in claim 37, wherein the mechanism comprises a striking device disposed in the housing to quickly strike the receptacle.

39. (Original) A device as in claim 37, wherein the striking device comprises a spring-loaded lever arm, and a release apparatus to release the lever arm.

Ad

40. (Original) A device as in claim 37, further comprising a pivotal latch having a lock that pivots as the receptacle is moved against the latch, and a trigger having a ramp, wherein the lock of the latch is slidable upon the ramp when the latch pivots to cause the lever arm to pivot and compress a first spring and cause the lock to engage the trigger to lock the lever arm in an energy storage position.

41. (Original) A device as in claim 40, further comprising a second spring that is in contact with the trigger, wherein further movement of the receptacle causes the receptacle to engage and move the trigger away from the lock to release the lever arm which then strikes the receptacle.

42. (Original) A device as in claim 37, wherein the mechanism comprises an arm that is operably mounted to the housing, and a movable platform to move the receptacle past the arm while temporarily engaging the arm.

43. (Original) A device as in claim 37, wherein the mechanism comprises a vibratable element in the housing that is configured to at least temporarily contact the receptacle.

44. (Original) A device as in claim 43, wherein the vibratable element comprises a piezoelectric transducer.

45. (Original) A device as in claim 37, wherein the aerosolization system comprises a mouthpiece that is adapted to receive a patient's mouth to permit the patient to create the gas stream.

46. (Currently Amended) A kit for aerosolizing a powder, comprising:
at least one receptacle having an enclosed chamber containing an amount of a powder;

an aerosolization device having an opening for receiving the receptacle,
the aerosolization device also having an aerosolization mechanism to aerosolize the powder in the receptacle by flowing gas through the chamber; and

instructions describing a method for providing at least one pulse of energy to the receptacle prior to aerosolizing the powder.

Act

47. (Original) A kit as in claim 46, wherein the instructions describe manually striking the receptacle with a finger or a hard surface.

48. (Original) A kit as in claim 46, further comprising a powder conditioning device, and wherein the instructions describe placing the receptacle into the powder conditioning device prior to placing the receptacle into the aerosolization device.

49. (Original) A kit as in claim 48, wherein the powder conditioning device comprises a frame and a spring-loaded lever arm pivotally coupled to the frame, wherein the lever arm is releasable to strike the receptacle.

50. (Original) A kit as in claim 49, wherein the instructions describe placing the receptacle into the aerosolization device and operating a button on the aerosolization device to supply an amount of energy to the receptacle to increase the efficiency at which the powder may be extracted from the chamber when operating the device.

51. (Cancelled)

52. (Currently Amended) A device as in claim ~~59~~ 54, wherein the container comprises a base and a cover that is pivotally coupled to the base, wherein the base and the cover define an enclosure which is adapted to receive the receptacle.

53. (Original) A device as in claim 52, further comprising a coupling arrangement is adapted to couple the receptacle to the base.

54. (Currently Amended) A powder conditioning device comprising:
a container that is adapted to hold a receptacle having an enclosed chamber containing an amount of a powder; and
a mechanism coupled to the container that is operable to provide at least one pulse of energy to the receptacle to increase the efficiency at which the powder may be extracted from the chamber when flowing a gas through the chamber,
wherein the container comprises a base and a cover that is pivotally coupled to the base, the base and the cover defining an enclosure which is adapted to receive the receptacle, and further comprising a coupling arrangement adapted to couple the receptacle to the base, and

AC
cut to

A device as in claim 53, wherein the mechanism comprises a hook coupled to the cover that is adapted to engage and then release the receptacle when the cover is pivoted to permit the receptacle to strike the base.

55. (Currently Amended) A powder conditioning device comprising:
a container that is adapted to hold a receptacle having an enclosed chamber containing an amount of a powder; and
a mechanism coupled to the container that is operable to provide at least one pulse of energy to the receptacle to increase the efficiency at which the powder may be extracted from the chamber when flowing a gas through the chamber,
wherein the container comprises a base and a cover that is pivotally coupled to the base, the base and the cover defining an enclosure which is adapted to receive the receptacle, and further comprising a coupling arrangement adapted to couple the receptacle to the base A device as in claim 53, wherein the coupling arrangement is pivotally coupled to the base, and wherein the mechanism comprises a latch that is operably coupled to the base, an arm that is coupled to the cover, and a cantilever beam that is attached to the coupling arrangement, wherein the arm is configured to engage and pivot the coupling arrangement as the cover is opened, and wherein the latch is configured to engage and then release the cantilever beam when the coupling arrangement is pivoted to permit the cantilever beam to strike the receptacle.

56. (Original) A device as in claim 55, wherein the latch is slidably coupled to the base such that the latch may be moved over the cantilever beam after the receptacle has been positioned within the enclosure.

57. (Currently Amended) A powder conditioning device comprising:
a container that is adapted to hold a receptacle having an enclosed chamber containing an amount of a powder; and
a mechanism coupled to the container that is operable to provide at least one pulse of energy to the receptacle to increase the efficiency at which the powder may be extracted from the chamber when flowing a gas through the chamber,
wherein the container comprises a base and a cover that is pivotally coupled to the base, the base and the cover defining an enclosure which is adapted to receive the receptacle, and further comprising a coupling arrangement adapted to couple the receptacle to the base, and

~~A device as in claim 53, wherein the mechanism comprises a spring that is coupled to the cover and a latch that is operably coupled to the base, wherein the latch is operable to release the spring to permit the spring to strike the receptacle.~~

58. (Original) A device as in claim 57, wherein the latch is slidably coupled to the base such that the latch may be moved to release the spring after the cover has been closed.

59. (Currently Amended) A powder conditioning device comprising:
a container that is adapted to hold a receptacle having an enclosed
chamber containing an amount of a powder; and
a mechanism coupled to the container that is operable to provide at least
one pulse of energy to the receptacle to increase the efficiency at which the powder may be
extracted from the chamber when flowing a gas through the chamber.

~~A device as in claim 51, wherein the container is adapted to hold a plurality of stacked receptacles, and wherein the mechanism comprises a biased striking member and a trigger that is movable between a home position and a striking position, wherein movement of the trigger to the striking position releases the striking member to permit the striking member to strike one of the receptacles.~~

60. (Original) A device as in claim 59, further comprising an advancement apparatus that is configured to advance the receptacles toward the striking member upon movement of the trigger to the striking position, and further comprising a push plate coupled to the trigger such that movement of the trigger back to the home position pushes a treated receptacle from the container.

61. (Currently Amended) A method for aerosolizing a powder, the method comprising:

placing a receptacle having a chamber containing an amount of a powder into an aerosolization device having an aerosolization system for extracting the powder from the receptacle by flowing gas through the chamber and for entraining the powder in a gas stream to form an aerosol, and a mechanism to provide at least one pulse of energy to the receptacle; and
providing a pulse of energy to the receptacle using with the mechanism and actuating the aerosolization system to extract the powder from the receptacle ~~at about the same.~~

AL

62. (Original) A method as in claim 61, wherein the pulse of energy is provided within about 100 ins before actuation of the aerosolization system to about 25 ms after actuation of the aerosolization system.

63. (Original) A method as in claim 61, wherein the emitted dose is increased by about 10% when the pulse of energy is provided at about the same time as actuation of the aerosolization system.

